

MODIS IOT Weekly Report

Mission Operations Days: 2001/160 to 2001/166

June 8, 2001 20:00:00 GMT to June 15, 2001 20:00:00 GMT

The MODIS Power Supply 2 Shut Off on DOY 2001/166. (details below)

MODIS is currently in Survival Mode.

Terra Spacecraft and MODIS Instrument Status:

Terra (AM-1) is in Normal Mode with SSR supersets 30 and 31 unallocated

MODIS is in B-side Science Mode

Blackbody	A Off; B Off	PS2 Shutdown Anomaly
Calibration Electronics	A Off; B Off	PS2 Shutdown Anomaly
Control Processor	A Off; B Off	PS2 Shutdown Anomaly
Door: Nadir	Unlatched, open	Nominal
Space View	Unlatched, open	Nominal
Solar Diffuser	Unlatched, closed	Nominal
FDDI Formatter	A Off; B Off	PS2 Shutdown Anomaly
FDDI Port	A Off; B Off	PS2 Shutdown Anomaly
FIFO Memory	1 & 2 Off; 3 & 4 Off	PS2 Shutdown Anomaly
Format Processor	A Off; B Off	PS2 Shutdown Anomaly
Power Supply: 1	Off	PS2 Shutdown Anomaly
2	Off	PS2 Shutdown Anomaly
PV FPAs: VIS	A Off; B Off	PS2 Shutdown Anomaly
NIR	A Off; B Off	PS2 Shutdown Anomaly
SMIR	A Off; B Off	PS2 Shutdown Anomaly
LWIR	A Off; B Off	PS2 Shutdown Anomaly
PC FPA: LWIR	A Off; B Off	PS2 Shutdown Anomaly
Radiative Cooler:		
Outgas Heaters	All Off	Nominal
LWIR FPA Heater	Off	PS2 Shutdown Anomaly
SMIR FPA Heater	Off	PS2 Shutdown Anomaly
Scan Assembly	A Off; B Off	PS2 Shutdown Anomaly
SDSM	Off	PS2 Shutdown Anomaly
SRCA	Off	PS2 Shutdown Anomaly
Survival Heaters: PS1	Enabled	Nominal
PS2	Enabled	Nominal
Timing Generator	A Off; B Off	PS2 Shutdown Anomaly
Flight Software	Rev BD	PS2 Shutdown Anomaly
Inhibit Ids Set	None	PS2 Shutdown Anomaly
TMONs enabled	None	PS2 Shutdown Anomaly

This Week's Completed MODIS Activities:

Saturday, June 9, 2001

None

Sunday, June 10, 2001

161/21:35 First attitude disturbances due to config. change for maneuver
161/22:54:37 ATC Move Formatter to Night ahead by 3:23 to ensure 50/50 day/night
161/22:58:54 FOT ATC commanding: Begin slew to -20.0192 degrees
161/23:07:17 ATC Set Formatter to Day Rate
161/23:07:19 ATC Set SCIABNORM Flag to ABNORM
161/23:07:21 ATC PC DC Restore to OFF
161/23:07:23 ATC PV DC Restore to OFF
161/23:07:25 ATC Sector Rotation to -3072 (EA to SV and OBCs)
161/23:13:55 ATC Sector Rotation to Zero (Normal)
161/23:13:57 ATC PV DC Restore to ON
161/23:13:59 ATC PC DC Restore to ON
161/23:14:01 ATC Set SCIABNORM Flag to NORM
161/23:14:03 ATC Set Formatter to Night Rate
161/23:14:35 FOT ATC commanding: Return to nominal attitude
161/23:24 Final attitude disturbances due to config. change for maneuver
161/23:50:52 ATC Move Formatter to Day later by 3.23 to ensure 50/50 day/night

Monday, June 11, 2001

None

Tuesday, June 12, 2001

None

Wednesday, June 13, 2001

164/15:53:07-16:04:35	ATC	OA15: SD/SDSM Open
164/16:44:21-17:17:54	ATC	OA19: SRCA Full Radiometric
164/17:32:00-17:43:28	ATC	OA16: SD/SDSM Screened
164/19:27:39-19:30:10	ATC	OA27: PV ECAL
164/21:05:31-21:10:05	ATC	OA28: PC ECAL

Thursday, June 14, 2001

None

Friday, June 15, 2001

None

This Week's Scheduled MODIS Activities Not Completed:

None

Upcoming MODIS Events:

No events will be scheduled until PS2 Shut Off Anomaly is resolved.

Saturday, June 15, 2001

None

Sunday, June 16, 2001

None

Monday, June 17, 2001

None

Tuesday, June 18, 2001

None

Wednesday, June 19, 2001

None

Thursday, June 20, 2001

None

Friday, June 21, 2001

None

Maneuvers:

No maneuvers are scheduled at this time.

MODIS Anomalies:

On June 15th, 2001, at 03:56:08 GMT, MODIS experienced an anomaly.

The Flight Operations Team paged the on-call MODIS engineer reporting a trip of TMON #68, the MODIS double FIFO write TMON. In addition, many red limit violations were reported. Inspection of telemetry showed peculiar states including a CP mode of INVALID and the MODIS model as ENGINEERING. With all telemetry suspect, the MODIS IOT commanded the instrument to low-power mode (using MOD_ALL_OFF) at 05:16:43.

Investigation is still pending, but below is the current understanding of the event:

Continued telemetry analysis showed that the TMON itself did not trip, but rather, it went into an error state because it was receiving stale telemetry. At the anomaly time, all telemetry “pegged out”, and the telemetry headers stopped incrementing (thus explaining the error reported by the TMON).

Science data stopped being recorded on the SSR at the same time the housekeeping telemetry “pegged out”. This suggests that it was NOT a 1553 Bus communication problem between MODIS and the spacecraft, but rather something that would affect both housekeeping and science data.

At the time of the anomaly, the EPS feed current to MODIS (an external spacecraft point) dropped from ~1.5 Amps to 0.07 Amps suggesting that all MODIS components, with the exception of the power supply, powered down at that time.

An Anomaly review/recovery team has been assembled and has begun holding daily meetings to determine the cause, and recovery path from this anomaly.

General Instrument Comments:

MODIS is currently powered off in Survival Mode. The Survival Heaters are cycling as expected. Return to an operational mode is currently pending the outcome of the MODIS Power Supply 2 Anomaly.

MODIS Telemetry Trends:

Telemetry is trending nominally. The amount of power required by the focal plane heater to maintain 83.0K is still slowly decreasing, although the spacecraft is currently near the minimum absolute solar beta angle for the year.

Voltage, current and temperature trending over the previous month, in addition to selected past time periods is currently underway to support the resolution of the MODIS Power Supply 2 Shut Down Anomaly.

Non-MODIS Significant Events:

MOPITT Anomaly:

The MOPITT team is still working to recover their instrument to science operations.

Limited Life Item Status:

SRCA 10W Lamp #1: 186.1 of 500 hours
SRCA 10W Lamp #2: 143.0 of 500 hours
SRCA 10W Lamp #3: 152.2 of 500 hours
SRCA 10W Lamp #4: 61.5 of 500 hours

SRCA 1W Lamp #1: 557.6 of 4000 hours
SRCA 1W Lamp #2: 276.3 of 4000 hours

Solar Diffuser Door: 1633 of 3022 Movements
Nadir Aperture Door: 532 of 1316 Movements
Space View Door: 437 of 1316 Movements